

42181 and 42182—Continued.

is required to sow an acre. It germinates in three or four days, and about three months later the flowers appear, when the plants are ready for harvesting. The plants are usually cut down to within a few inches of the ground, tied up in bundles, and carried fresh to the factory. The stumps left in the ground will afterwards 'ratoon,' and two to four cuttings may be obtained from the same roots within the year. To produce the dye the whole plant is subjected to a process of fermentation and churning. The freshly cut bundles are placed in huge vats provided with a tap at the bottom; the top is weighted down with planks and water laid on so as to cover the whole. Fermentation sets in and is allowed to go on for 12 to 16 hours, being stopped when the leaves become a pale color. The liquid is run off by the tap into a second cistern and is kept constantly agitated by either wading coolies, who beat with paddles, or by a mechanical contrivance, for two or three hours, after which the indigo settles in the bottom in the form of bluish mud. This, after draining off the water, is put into bags which are hung to dry, being afterwards cut into squares and stamped and further dried for export. About 8 pounds of leaves will yield one-half ounce of indigo. Good cultivation yields an annual return of from 300 to 500 pounds of indigo per acre." (*MacMillan, Handbook of Tropical Gardening and Planting, pp. 450 and 451.*)

42182. ISATIS TINCTORIA L. Brassicaceæ.**Woad.**

"*Isatis tinctoria*, the dyer's woad, is said to have been originally a native of southeastern Europe, from whence it has spread by means of cultivation and become naturalised in most parts of Europe as far north as Sweden, and also in some parts of Asia. It is a biennial, growing from 18 inches to 3 or 4 feet high, with a smooth straight stem, branches toward the top, the root leaves stalked, inversely egg shaped or oblong, and coarsely toothed, the upper ones narrow lance shaped, with prominent auricles at the base. The pods are rather more than half an inch long, broad, and very blunt at the top, but tapering to the base. Before the use of indigo became common among European dyers, the blue coloring matter called woad, obtained from this plant, was an article of great importance, and the plant was extensively cultivated; but the introduction of indigo has almost entirely superseded it, and it is now only grown to a limited extent and used chiefly by woolen dyers for mixing with indigo, in order to excite fermentation. It is generally prepared by grinding the leaves into paste, which is then carefully fermented in heaps and afterwards made into balls or bricks for sale. The use of woad as a dye dates from very early times. Dioscorides, Pliny, and others mention its use for dyeing wool; and Cæsar relates that the ancient Britons used it for staining their bodies, the word Britain being derived from the Celtic *brith* or *brit*, 'painted,' in reference to this custom." (*Lindley, Treasury of Botany, vol. 1, p. 628.*)

42183 to 42199.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received March 20, 1916.

42183. ADENOCARPUS FOLIOLOSUS (Dryand.) DC. Fabaceæ.

"The stalks in this species are thickly covered with small leaves, which give the whole plant an outré appearance; hence the name '*foliolosus*,'